(12) UK Patent Application (19) GB (11) 2 359 065 (13) A

(43) Date of A Publication 15.08.2001

(21) Application No 0003031.2

(22) Date of Filing 10.02.2000

(51) INT CL[7]
B67D 1/08

(52) UK CL (Edition S)
B8N NJG N24D15 N24E5

(56) Documents Cited
GB 1537821 A WO 97/11327 A1

(58) Field of Search
UK CL (Edition R) B8N NJG , F4H H3 , F4U U29
INT CL[7] B67D 1/08 3/00 , F25D 1/00 1/02
Online: EPODOC, WPI, PAJ

(71) Applicant(s)
IMI Cornelius (UK) Limited
(Incorporated in the United Kingdom)
Tything Road, ALCESTER, Warwickshire, B49 6EU, United Kingdom

(72) Inventor(s)
Terrence Robert Davis

(74) Agent and/or Address for Service
Barker Brettell
138 Hagley Road, Edgbaston, BIRMINGHAM, B16 9PW, United Kingdom

(54) Abstract Title
Apparatus for cooling beverage receptacles using jets of water

(57) Apparatus for cooling receptacles 18 for a beverage comprises a dispense tap 10 and one or more jets 46 through which cold water is passed onto the exterior surface of a receptacle 18 placed under the dispense tap 10. A rotatable turntable 24 is provided under the dispense tap 10 on which the receptacle 18 sits when it is to receive the beverage. Two cold water jets 46 may be positioned diametrically opposed to each other, and positioned so that they impinge on the exterior of the receptacle 18 just under the rim. The turntable 24 to receive the receptacle 18 may be positioned within a drip tray 16 and may be driven by electric, belt, magnetic, or water impeller drive means. The jets 46 may be automatically activated when the dispense tap 10 is opened, however they may be arranged to operate before and/or after the dispense tap 10 is opened. The cold water is preferably cooled at a remote location from the dispense tap 10, and the cold water lines and beverage lines may both be accommodated in a python, where the cold water has the dual function of cooling the receptacle and maintaining the beverage at a cooled temperature.

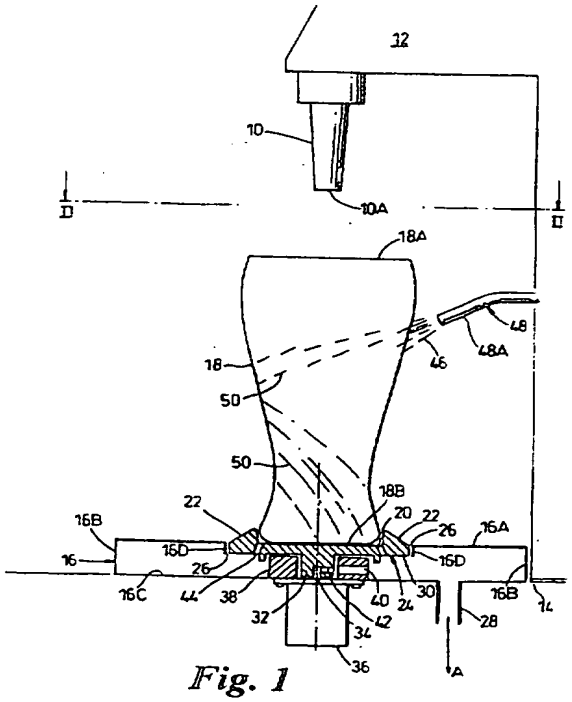

Fig. 1

At least one drawing originally filed was informal and the print reproduced here is taken from a later filed formal copy.

GB 2 359 065 A

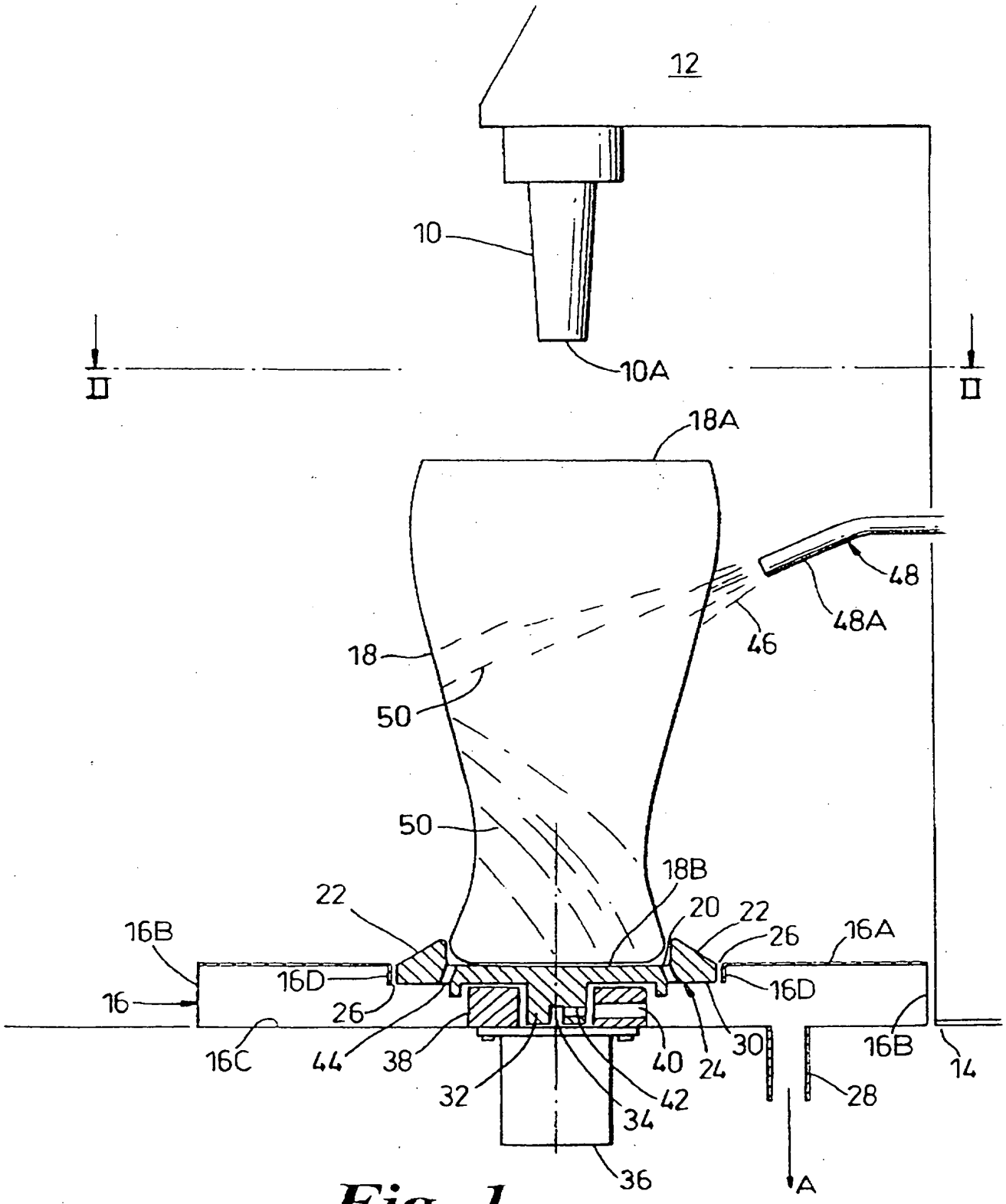
12
10
10A
II
II
18A
48
48A
46
18
50
50
18B
22
20
22
26
16A
16B
16D
16D
16
26
16C
44
38
32
40
24
30
16B
14
42
34
28
36
A

Fig. 1

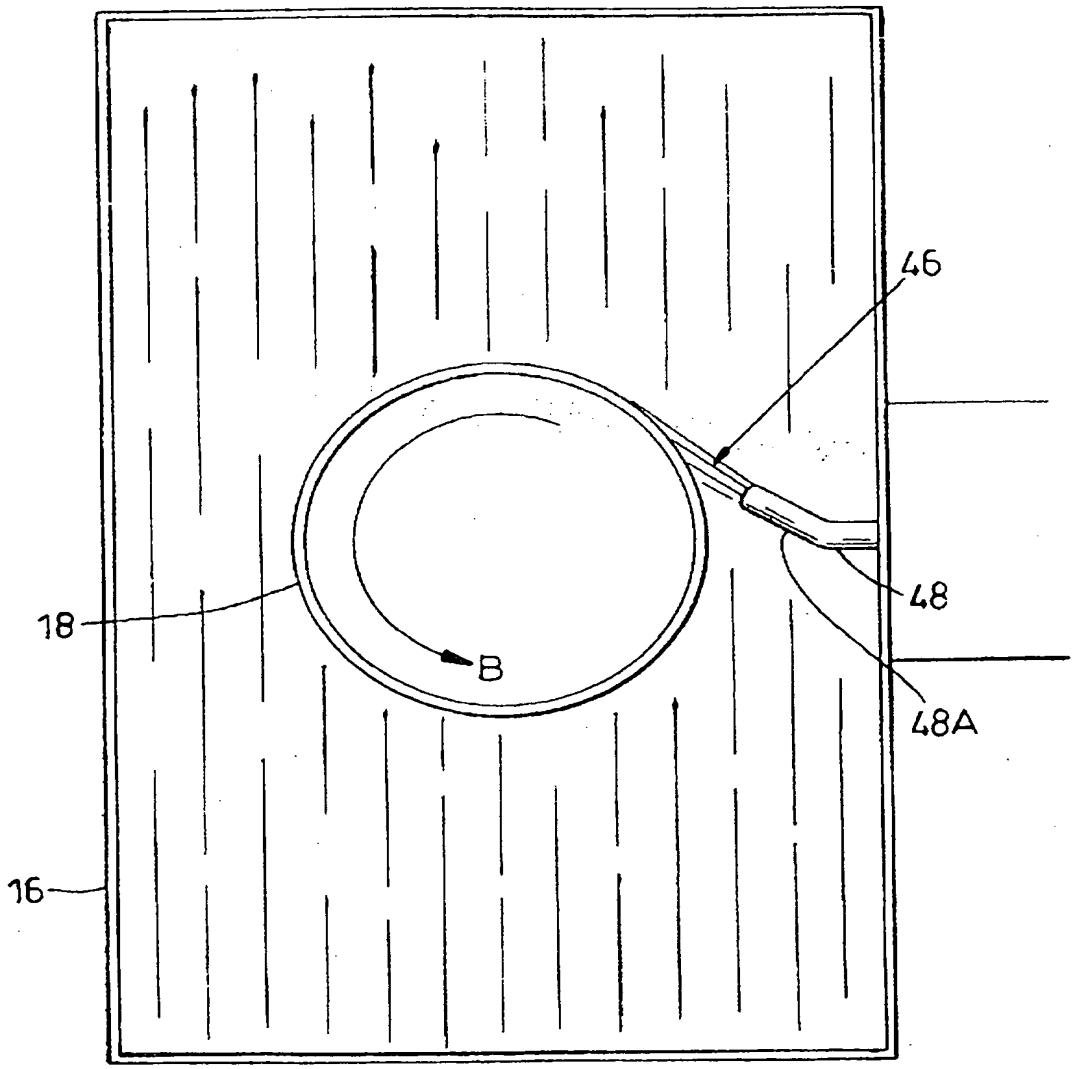

Fig. 2

BEVERAGE DISPENSE APPARATUS

This invention relates to a beverage dispense apparatus and particularly to an apparatus in which a glass or other receptacle to receive the dispensed beverage may be cooled.

For convenience the invention will be described further below with reference to dispense into a glass but it will be appreciated that it is equally applicable to other receptacles.

It is conventional practice to dispense certain beverages, e.g. lagers, some beers, and many soft drink beverages at a cooler than ambient temperature. It may be desired to dispense a drink into a glass or a receptacle at a particular temperature specified by the beverage brand owner. The beverage may be cooled in a cooler between a reservoir thereof, e.g. a beer keg in a cellar, and may be maintained in cooled condition by passing through a python between the reservoir and the dispense point in a bar. Cold water, glycol mixture or re-circulating beverage circulating in the python maintains the cooled temperature of the beverage.

It is also known to cool the glass into which the cooled beverage is dispensed, as dispense into a glass at ambient temperature or taken straight from a glass washer may impart too much heat to the dispensed beverage and result in its temperature rising above the desired level.

Glass cooling methods currently practised include keeping glasses in a chilled cabinet and holding an inverted glass over a cold jet of water. The former method takes up valuable space in a bar and requires a degree of management by bar staff to ensure that an adequate supply of cooled glasses is maintained. The latter is usually initiated by

pressing the glass down onto an activator for the water jet, the water impinging on the inside of the glass and draining, partially, away before use of the glass. Any residual cold water inside the glass necessarily has an at least small effect on the dispensed beverage. For reasons indicated above, neither of these prior methods is entirely successful.

It is, therefore, an object of the present invention to provide an improved means of cooling a glass or other receptacle into which a beverage is to be dispensed.

Accordingly, the invention provides an apparatus to cool a receptacle for a beverage to be dispensed, the apparatus comprising a dispense tap connectable to a supply of the beverage, one or more jets through which cold water can be passed, means to pump cold water through the jet(s), the jet(s) being positioned such that when a receptacle for a beverage is in the dispense position under the dispense tap cold water pumped through the jet(s) will impinge on the exterior surface of the receptacle, and a rotatable turntable on which the receptacle stands in the dispense position whereby the receptacle may be rotated.

As indicated above, the receptacle will typically be a glass and will be described hereinafter as such.

Preferably the apparatus comprises only one or two cold water jets and where two are used they may conveniently be positioned to be diametrically disposed about the glass.

Rotation of the turntable with the glass in position on it while the cold water is pumped through the jet(s) causes the water to spiral around the glass as it descends down the exterior of the glass under gravity. This can also reduce splashing from the jet(s).

Moreover the jet(s) are preferably positioned such that the jet(s) of water impinge on the exterior of the glass a little below its upper rim. The impinged cold water will thereby run down the outside of the glass contacting the majority of its external surface before draining away.

The apparatus may contain a drip tray for the draining water beneath the glass and, in another preferred embodiment, the turntable to receive the glass is positioned within the drip tray.

Preferably the means to pump the cold water through the jet(s) is activated automatically when the dispense tap is opened. The period of operation of the jets may coincide with that of the opening of the dispense tap but the jets may operate for a period before and/or during and/or after dispense of the beverage is taking place. Similarly, the turntable may be activated automatically to rotate when the dispense tap is opened or when the jet(s) are operated. The turntable may be arranged to continue to rotate for a period after the dispense has finished and even after the operation of the jet(s) is completed. In this latter instance, the continued rotation of the turntable may be used to help in the "presentation" of the dispensed beverage. For example, when dispense and/or operation of the jet(s) is/are completed, the turntable may continue to spin the glass at the same or a different speed, at oscillating speeds or in the reverse direction.

The turntable may be driven by any convenient means. Thus it may, for example, have electric, belt, magnetic or water impeller drive means.

The or each water jet is preferably in the form of a nozzle extending towards the glass and angled downwardly, i.e. with respect to a vertical glass. In a particularly preferred embodiment, in addition to

being angled downwardly, the outermost portion of the nozzle is also angled relative to the glass in the direction that the turntable rotates during operation of the jet(s). By this means the direction of the impinging water has a significant component of velocity in the same direction as the glass, thereby reducing splashing effects.

The means to pump the cold water through the jets may be any convenient means. The cold water may be fed from a cold water recirculating system at, by way of example only, 1° C through a valve, e.g. a solenoid valve, which is opened when a dispense is actuated by an operator.

The cold water may be cooled at a remote location from the dispense tap and pumped to the dispense tap as required. It may pass to the jets adjacent to the dispense tap, for example, as a flow line in a python and may be recirculated therethrough to prevent its standing and warming to ambient temperature. In this embodiment the python may accommodate both the cold water for the jets and the beverage to be dispensed and, if desired, the cold water in a single recirculating flow line can provide the dual function of cooling the glass and maintaining the cooled temperature of the beverage.

The dispense tap may be part of a conventional dispense head or font but, if desired, the cold water for the jets may conveniently be supplied via the dispense head. In other words the flow line to supply the jets may go through the dispense head or font.

The invention provides in an inexpensive manner a number of advantages over conventional methods of cooling glasses.

The cooling water is sprayed onto the outside of the glass and so has no effect, other than cooling, on the beverage dispensed into the glass.

The beverage can be dispensed during the cooling operation for the glass and enables the desired glass temperature at the time of dispense to be more readily and consistently achieved. Thus the desired beverage temperature is more consistently achieved.

The glass cooling operation is operator free in that it can automatically take place during the beverage dispense cycle.

The spray of the water jet(s) onto the exterior of the glass can be used after a dispense to clear any condensation that forms on the exterior of the glass when a cold beverage is dispensed into it.

As indicated above, continued rotation of the turntable with the filled glass on it and after operation of the jets can improve the presentation of the dispensed drink.

The apparatus does not require extra bar space and provides a novel dispense feature.

A glass is only cooled as and when it is to be used.

Embodiments of the invention will now be described by way of example only with reference to the accompanying drawings in which:

Figure 1 is a diagrammatic side elevation of one form of apparatus of the invention; and

Figure 2 is a view in the direction II-II of Figure 1.

In the drawings a dispense tap or spout 10 is part of a dispense font 12 mounted on a bar 14. Beverage at a temperature say between +1°C and –4.5°C is dispensed from tap 10. A drip tray 16 is positioned sufficiently beneath the outlet 10A of the dispense spout to allow a glass

18 to be positioned with its rim 18A beneath outlet 10A when its base 18B is just above the drip tray.

Base 18B of the glass sits in an annular recess 20 defined by an annular flange 22 of a rotatable turntable 24. Turntable 24 sits in circular hole in the centre of the upper surface 16A of the drip tray 16. The drip tray is in the form of a hollow box defined by sidewalls 16B, upper surface 16A and base 16C. Its upper surface 16A carries an annular flange 16D extending a short distance towards its base 16B, the flange defining hole 26 which is a little larger in diameter than the external diameter of the turntable. The annular gap thereby provided between surface 16A and the outer edge of turntable 24 provides a channel into the interior of the drip tray. Base 16C of the drip tray contains a drain 28 for water and any dispensed beverage overflow to drain away as indicted by arrow A.

The base 30 of the turntable has a downwardly depending boss 32 which has a recess opening in its lower face to contain the drive shaft 34 of an electric motor 36. Surrounding boss 32 is an annular sealing ring 38, sealingly attached to base 16C of the drip tray to prevent liquid reaching the motor. A passage 40 through ring 38 can be aligned with a passage 42 through boss 32 to communicate with the recess in the boss. By means of passages 40 and 42, the drive shaft 34 can be reached e.g. by screw driver or Allen key, to tighten or loosen the connection between the drive shaft and the boss. Passage 40 is sufficiently high up the ring 38 above floor 16C of the drip tray to ensure that liquid flow through the drip tray does not enter into it.

Boss 32 has sufficient clearance to spin freely within ring 38 so that the turntable can be rotated when required by actuation of the motor 36.

Base 30 of the turntable also has a drain passage 44 extending from its recess 20 into the drip tray 16.

A jet of water 46 can impinge on the exterior of glass 18 from a nozzle 48, which is connected to a pumped supply of chilled water. The outermost portion 48A of the nozzle is angled in two directions with respect to glass 18. As can be seen in Figure 1, portion 48A is angled downwardly with respect to the vertical axis of the glass. In Figure 2 it can be seen that portion 48A is also angled in the direction of rotation of glass 18, which in this instance is shown being rotated in an anti-clockwise direction as indicated by arrow B.

As indicated by the dotted lines 50 on the exterior of glass 18, the rotation of the glass imparts a spiralling effect to the chilled water flow on the glass surface and enables a cooling effect over a majority of that surface. The glass is, therefore, well cooled without any risk of cooling water contaminating its contents.

The dispense means for the beverage are not shown in full as they may be conventional. Also, as indicted above, the actuation of the dispense may be automatically connected to the operation of the water jet(s) and the actuation of the rotation of the turntable may be automatically connected to the dispense of the beverage and/or to the operation of the water jet(s). Thus if beverage dispense is actuated by a push button, that actuation may, for example, simultaneously open a solenoid valve to start the water jet(s) and close a circuit to operate the motor to rotate the turntable.

CLAIMS

1. An apparatus to cool a receptacle for a beverage to be dispensed, the apparatus comprising a dispense tap connectable to a supply of the beverage, one or more jets through which cold water can be passed, means to pump cold water through the jet(s), the jet(s) being positioned such that when a receptacle for a beverage is in the dispense position under the dispense tap cold water pumped through the jet(s) will impinge on the exterior surface of the receptacle, and a rotatable turntable on which the receptacle stands in the dispense position whereby the receptacle may be rotated.

2. An apparatus according to Claim 1, in which there are two cold water jets positioned to be diametrically opposed across the receptacle in the dispense position.

3. An apparatus according to Claim 1 or 2, in which the jets are positioned such that the jets of cold water will impinge on the exterior of the receptacle a little below its upper rim.

4. An apparatus according to Claim 1, 2 or 3, which contains a drip tray and the turntable to receive the receptacle is positioned within the drip tray.

5. An apparatus according to any preceding claim, in which the jets are activated automatically when the dispense tap is opened.

6. An apparatus according to any preceding claim, in which the period of operation of the jets is arranged to continue for the period of opening of the dispense tap.

7. An apparatus according to Claim 6, in which the jets are arranged to operate before and/or after the period of opening of the dispense tap.

8. An apparatus according to any preceding claim, in which the turntable is arranged to be rotated automatically when the dispense tap is opened.

9. An apparatus according to Claim 8, in which the turntable is arranged to continue to rotate for a period after the dispense tap has been closed.

10. An apparatus according to Claim 9, in which the turntable is arranged to continue to rotate with the glass at a different speed or an oscillating speed or in the reverse direction after the dispense tap is turned off and/or operation of the jets has been completed.

11. An apparatus according to any preceding claim, in which the turntable is driven by electric, belt, magnetic or water impeller drive means.

12. An apparatus according to any preceding claim, in which each jet is in the form of a nozzle extending towards the receptacle and angled downwardly.

13. An apparatus according to any preceding claim, in which each jet is in the form of a nozzle and the outermost portion of the nozzle is angled towards the receptacle in the direction that the turntable rotates during operation of the jets.

14. An apparatus according to any preceding claim, in which the cold water is cooled at a remote location from the dispense tap.

15. An apparatus according to any preceding claim, in which the flow lines for the cold water and for the beverage to be dispensed are both accommodated within a python whereby the cold water has a dual function of cooling the receptacle and maintaining the beverage at a cooled temperature.

16. An apparatus according to any preceding claim, in which the flow line to supply the cold water to the jets passes through a dispense head which also carries the dispense tap.

17. An apparatus according to any one of Claims 4 to 16, in which the turntable contains a recess to receive the receptacle and a passage extends from the base of the recess into the drip tray.

18. An apparatus according to any one of Claims 4 to 17, in which the drip tray is in the form of a hollow box having a base containing a drain passage and an upper surface having an annular flange extending towards the base, the flange defining a hole a little larger than the external diameter of the turntable.

19. An apparatus according to any preceding claim, in which the base of the turntable has a downwardly depending boss having a recess opening in its lower face to receive a drive shaft.

20. An apparatus according to Claim 1, substantially as hereinbefore described with reference to and as shown in the accompanying drawings.

Application No: GB 0003031.2
Claims searched: 1-20

Examiner: Emma Tonner
Date of search: 6 April 2000

Patents Act 1977
Search Report under Section 17

Databases searched:

UK Patent Office collections, including GB, EP, WO & US patent specifications, in:

UK Cl (Ed.R): B8N (NJG); F4H (H3); F4U (U29)

Int Cl (Ed.7): B67D 1/08, 3/00; F25D 1/00, 1/02

Other: Online: EPODOC, WPI, PAJ

Documents considered to be relevant:

Category	Identity of document and relevant passage	Relevant to claims
A	GB 1 537 821 (MK REFRIGERATION)	
A	WO97/11327 A1 (LOIBL)	

X	Document indicating lack of novelty or inventive step	A	Document indicating technological background and/or state of the art.
Y	Document indicating lack of inventive step if combined with one or more other documents of same category.	P	Document published on or after the declared priority date but before the filing date of this invention.
&	Member of the same patent family	E	Patent document published on or after, but with priority date earlier than, the filing date of this application.